

MONTHLY WEATHER REVIEW.

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INTRODUCTION.

This Review for December, 1893, is based on reports from 2,964 stations occupied by regular and voluntary observers. These reports are classified as follows: 154 reports from Weather Bureau stations; 40 reports from United States Army post surgeons; 2,067 monthly reports from state weather service and voluntary observers; 27 reports from Canadian stations; 218 reports through the Southern Pacific Railway Company; 458 marine reports through the co-operation of the Hydrographic Office, Navy Department, and "New York

Herald Weather Service;" 106 weekly reports from 36 U. S. Life-Saving stations; 2 reports from navigators on the Great Lakes; monthly reports from local services established in all states and territories; and international simultaneous observations. Trustworthy newspaper extracts and special reports have also been used.

The WEATHER REVIEW for this month has been prepared under the general editorial supervision of Prof. Cleveland Abbe. The statistical data is furnished by Records Division.

CHARACTERISTICS OF THE WEATHER FOR DECEMBER, 1893.

HIGH AND LOW AREAS.

The high areas for December have generally pursued either extreme southerly or extreme northerly paths, and the United States has, to a large extent, been under the influence of the dry, clear sky of the areas of high pressures.

The important low-pressure storm that passed over the Lake region on the 14th and 15th was made the occasion of special Lake Storm Bulletin No. V; it was followed by an extensive area of cold northwest winds, with snow.

The highest pressures, in connection with high area No. VIII, were reported as 30.96 at Swift Current, Assiniboia, on the morning of the 12th, 30.94 at White River, Ont., on the morning of the 13th, and 30.92 at Albany, N. Y., on the morning of the 14th, being one of the most decided, long-continued high pressures that has been recorded in December.

TEMPERATURE.

Temperatures were generally above the average throughout the United States south of latitude N. 43°, but were below the average north of that limit. The mean temperature at Saint Vincent, Minn., and probably to the northward was one of the lowest on record.

PRECIPITATION.

The rain and snow fall has generally been below the average for December, except in the northern part of New England, the Lake region, and westward to Dakota. The quantity of snow has been generally up to the average in northern sections, but below the average in the southern portion of the

region where snow falls, and the same may be said as to the depth of snow lying on the ground at the end of the month.

WINDS.

Among the highest winds reported during the month have been: 106 miles per hour, on the 1st, at Pikes Peak, Colo.; 84 miles from the south, on the 20th, at Fort Canby, Wash.; 64 miles from the southwest, on the 24th, at Amarillo, Tex.; and 60 miles from the north, on the 5th, at Kittyhawk, N. C.

CROPS.

The Weather Crop Bulletin for the month of December shows that the ground was covered with snow at the close of the month north of latitude 43°, but that the region in which winter wheat is raised was uncovered and, consequently, the seed and plants have been subjected to undesirable variations in temperature; fortunately, however, the reports generally state that the ground is dry and not frozen hard, the fall grains are doing well, and plowing is being well advanced during the fine weather.

INLAND NAVIGATION.

The rivers have generally remained below the danger line, the only floods reported having occurred in the Willamette River at Portland, Oregon, on the 4th, Buffalo Creek, N. Y., on the 16th, and Roseburg, Oregon, in the Coquille River, on the 5th. The Hudson River was closed for a few days in the latter part of the month; the upper Saint Lawrence was closed December 14, being one of the earliest dates on record.

ATMOSPHERIC PRESSURE (expressed in inches and hundredths).

The distribution of mean atmospheric pressure reduced to sea level for December, 1893, as determined from observations taken daily at 8 a. m. and 8 p. m. (75th meridian time), is shown by isobars on Chart II, which also gives the so-called prevailing winds, or those most frequently observed at each station.

The normal distribution of atmospheric pressure for De-

cember and the direction of the normal wind resultant for each station is shown on Chart V. This chart has been prepared by Prof. H. A. Hazen, who has also prepared all the others of this series preliminary to the publication by the Weather Bureau of specially prepared data and charts showing the meteorological and climatic features and conditions of the United States. The pressures for both Canada and